

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 15 JUN 2005  
WIPO PCT

Applicant's or agent's file reference 29143-49	<b>FOR FURTHER ACTION</b> <small>See Form PCT/IPEA/416</small>	
International application No. PCT/US2004/018594	International filing date (day/month/year) 10.06.2004	Priority date (day/month/year) 11.06.2003
International Patent Classification (IPC) or national classification and IPC C22B9/05, C22B21/06, B22D1/00, C21C7/00		
<p>Applicant PORVAIR PLC</p> <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 17.03.2005	Date of completion of this report 14.06.2005	
Name and mailing address of the International Preliminary Examining Authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	<p>Authorized Officer Bombeke, M Telephone No. +31 70 340-3576</p> 	

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/US2004/018594

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-11 as originally filed

**Claims, Numbers**

1-31 filed with the demand

**Drawings, Sheets**

1/5-5/5 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

- The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
- This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-31
	No: Claims	
Inventive step (IS)	Yes: Claims	1-31
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-31
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Re Item V.**

1 The following document is referred to in this communication:

D1 : PATENT ABSTRACTS OF JAPAN vol. 010, no. 219 (C-363), 31 July  
1986 (1986-07-31) & JP 61 056257 A (JAPAN METALS & CHEM CO LTD), 20  
March 1986 (1986-03-20)

**2 INDEPENDENT CLAIMS 1 AND 25**

The subject-matter of claim 1 resp. 25 concerns a degasser device resp. an apparatus for purifying molten metal, characterized by comprising a microporous plate including first and second internal passageways with first and second nonporous interface tubes attached to said microporous plate in flow communication with said first and second internal passageways.

Such a plate-shaped degasser device is not taught in closest prior art document D1, which recites a microporous degasser element of single tube design.

Furthermore, said document nor any other citation of the ISR does contain any indication or hint to the possibility, feasibility and usefulness of providing multiple passageways and interface tubes for degassing/purifying molten metal.

Hence the devices defined in independent claims 1 and 25 are novel in the sense of Art. 33(2) PCT and do involve an inventive step in the sense of Art. 33(3) PCT.

2.1. Claims 2-12 resp. 26-31 are dependent on claim 1 resp. 25 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**3 CLAIMS 13-24**

Claim 13 to a "method" of purifying molten metal differs from D1 (which discloses the immersion of a microporous "pipe" in the molten metal to be degassed and evacuating the pipe to exhaust the the gas in the melt through the porous wall of the pipe) in that a microporous "plate" with interface tube connection is used and in that a purge gas is passed into said microporous plate. D1 does not contemplate or suggest the use of a purge gas in connection with pipe evacuation.

It follows that the subject-matter of independent claim 13, and thus also of dependent

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claims 14-24, is novel (Article 33(2) PCT) and inventive (Art. 33(3) PCT).